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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/667,499 | 09/23/2003 | Kyung-Chool Choi | 45441 | 1923 |

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| EXAMINER | |
|---|---|
| SHAH, MANISH S | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2853 | |

DATE MAILED: 12/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/667,499 | CHOI ET AL. | |
| | Examiner | Art Unit | |
| | Manish S. Shah | 2853 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *08 November 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Muranaka (# US 6004052) and Richtsmeier et al. (# US 5420621).

AAPA discloses an ink jet printer including a print head forming an image by spraying ink from a nozzle towards a paper (element: 6, figure: 1-2); a transfer unit for transferring the paper towards the print head (figure: 1-2); a discharge/heater roller being in contact with a side of the paper opposite to a side with image formed thereon by the print head for drying ink, and for discharging the paper; wherein the discharge /heater roller includes a heat conductive cylinder portion; a heat generator disposed on an inner surface of the cylinder portion in an axial direction (element: 8, figure: 2). They also discloses that the discharge/heater roller is disposed close to the print head (figure: 2).

AAPA differs from the claim of the present invention is that the (1) one or more supporting rolls located above the discharge/heater roller for discharging paper together with the discharge/heater roller, wherein supporting roller including a star wheel for

minimizing a spread of ink of the image on the paper. (2) The discharge/heater roller includes a roller rubber covering the cylindrical portion and generating a friction force during the discharging paper portion, wherein the cylindrical portion is formed of aluminum, and wherein the roller rubber is formed of material, which is heat resistant with respect to a predetermined temperature transmitted from the heat generator.

Richtsmeier et al. teaches that to get the printed image without damaging the quality of printed image, which could be graphics, text or combination (column: 1, line: 45-51), inkjet printer includes one or more supporting rolls (element: 28, figure: 1) located above the discharge roller (element: 26, figure: 1) for discharging paper together with the discharge roller, wherein supporting roller including a star wheel for minimizing a spread of ink of the image on the paper (element: 28, figure: 1, 4-5; column: 1, line: 55-65; column: 3, line: 40-67).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the inkjet printer of AAPA by the aforementioned teaching of Richtsmeier et al. in order to get the printed image without damaging the quality of printed image, which could be graphics, text or combination.

Muranaka teaches that to remove the moisture and feed and discharge the sheet smoothly, the heater roller includes a roller rubber (elastic, silicone rubber) (element: 12, figure: 2, 5) covering the cylindrical portion (element: 11, 26, figure: 2, 5) and generating a friction force during the discharging paper portion (column: 4, line: 18-25), wherein the cylindrical portion is formed of aluminum (column: 4, line: 10-15), and wherein the roller

rubber is formed of material, which is heat resistant with respect to a predetermined temperature transmitted from the heat generator (column: 4, line: 7, line: 1-12).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the discharge roller (element: 8; figure: 2) of inkjet printer of AAPA by the aforementioned teaching of Muranaka in order to remove the printed sheet smoothly from the inkjet printer, which gives the high quality printed image.

2. Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Richtsmeier et al. (# US 5420621) and Kashiwagi (# US 5111250).

AAPA discloses an ink jet printer including a print head forming an image by spraying ink from a nozzle towards a paper (element: 6, figure: 1-2); a transfer unit for transferring the paper towards the print head (figure: 1-2); a discharge/heater roller being in contact with a side of the paper opposite to a side with image formed thereon by the print head for drying ink, and for discharging the paper; wherein the discharge /heater roller includes a heat conductive cylinder portion; a heat generator disposed on an inner surface of the cylinder portion in an axial direction (element: 8, figure: 2). They also discloses that the discharge/heater roller is disposed close to the print head (figure: 2).

AAPA differs from the claim of the present invention is that (1) the discharge/heater roller includes a roller rubber covering the cylindrical portion and generating a friction force during the discharging paper portion, wherein the cylindrical

portion is formed of aluminum, and wherein the roller rubber is formed of material, which is heat resistant with respect to a predetermined temperature transmitted from the heat generator. (2) The heater generator includes a heater coil formed of nichrome wire.

Muranaka teaches that to remove the moisture and feed and discharge the sheet smoothly, ink jet printer includes the heater roller includes a roller rubber (elastic, silicone rubber) (element: 12, figure: 2, 5) covering the cylindrical portion (element: 11, 26, figure: 2, 5) and generating a friction force during the discharging paper portion (column: 4, line: 18-25), wherein the cylindrical portion is formed of aluminum (column: 4, line: 10-15), and wherein the roller rubber is formed of material, which is heat resistant with respect to a predetermined temperature transmitted from the heat generator (column: 4, line: 7, line: 1-12).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the discharge roller (element: 8; figure: 2) of inkjet printer of AAPA by the aforementioned teaching of Muranaka in order to remove the printed sheet smoothly from the inkjet printer, which gives the high quality printed image.

Kashiwagi teaches that to heat the recording medium, the heater generator includes a heater coil formed of nichrome wire (column: 1, line: 15-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the discharge roller (element: 8; figure: 2) of inkjet printer of AAPA by the aforementioned teaching of Kashiwagi in order to get smooth and effective fixing printed image, which gives the high quality printed image.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Muranaka (# US 6004052) and Richtsmeier et al. (# US 5420621) as applied to claims 1-5 above, and further in view of Kashiwagi (# US 5111250).

AAPA, Muranaka and Richtsmeier et al. teaches all the limitations of the present invention accept that the heater generator includes a heater coil formed of nichrome wire.

Kashiwagi teaches that to heat the recording medium, the heater generator includes a heater coil formed of nichrome wire (column: 1, line: 15-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the discharge roller (element: 8; figure: 2) of inkjet printer of AAPA by the aforementioned teaching of Kashiwagi in order to get smooth and effective fixing printed image, which gives the high quality printed image.

***Response to Arguments***

Applicant's arguments filed 11/08/2005 have been fully considered but they are not persuasive. Applicant argued that the Muranaka provided no suggestion of the heating the paper downstream of the print head. However Examiner combine this reference to show that the heater roller includes a roller rubber (elastic, silicone rubber) (element: 12, figure: 2, 5) covering the cylindrical portion (element: 11, 26, figure: 2, 5) and generating a friction force during the discharging paper portion (column: 4, line: 18-

25), wherein the cylindrical portion is formed of aluminum (column: 4, line: 10-15), and wherein the roller rubber is formed of material, which is heat resistant with respect to a predetermined temperature transmitted from the heat generator (column: 4, line: 7, line: 1-12). In figure 2 of AAPA already disclose that the heating the paper using the heater roller after printing (downstream). Examiner combine with Muranaka reference to show only structure and element of the heater roller. So it is obvious to modify the heater roller of AAPA by the Muranaka reference. It doesn't matter where is the heater roller in the Muranka reference. It is just replacing the AAPA roller to Muranaka roller. So combination of the reference reads on the claim language.

***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Manish S. Shah whose telephone number is (571) 272-2152. The examiner can normally be reached on 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen D. Meier can be reached on (571) 272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Manish S. Shah
Primary Examiner
Art Unit 2853

MSS
12/19/05